In the Claims

1. (canceled)

2. (canceled)

3. (canceled)

4. (canceled)

5. (canceled)

6. (canceled)

7. (canceled)

8. (canceled)

9. (canceled)

10. (canceled)

11. (canceled

12. (canceled

13. (canceled)

14. (original) A system separating components in individual signals, comprising:

a single sensor configured to acquire concurrently a plurality of individual signals generated by a plurality of source;

a buffer configured to store an input non-negative matrix representing the plurality of individual signals, the input non-negative matrix including columns representing features of the plurality of individual signals at different instances in time; and

means for factoring the first non-negative matrix into a set of non-negative bases matrices and a non-negative weight matrix, the set of bases matrices

and the weight matrix representing the plurality of individual signals at the different instances of time.

15. (new) The system of claim 14, in which there is one non-negative bases matrix for each individual signal.

16. (new) The system of claim 1, in which the input non-negative matrix is **V,** the set of non-negative bases matrices is $\mathbf{W}_t$, and the non-negative weight matrix is **H** such that $\mathbf{V} \approx \sum_{t=0}^{T-1} \mathbf{W}_t \cdot \overrightarrow{\mathbf{H}}^{t}$,

where $\mathbf{V} \in \Re^{\geq 0, M \times N}$ is the input non-negative matrix to be factored, the set of non-negative bases matrices is $\mathbf{W}_t \in \Re^{\geq 0, M \times R}$, and the non-negative weight matrix is $\mathbf{H} \in \Re^{\geq 0, R \times N}$ over successive time intervals *t*, and an operator $\overrightarrow{(.)}^{t}$ shifts columns of corresponding matrices by *i* time increments to the right.

17. (new) The system of claim 16, in which left most corresponding columns of the matrix H are shifted to zero to maintain an new size of the matrix **H** when the operator $\overrightarrow{(.)}^{t}$ is applied.

18. (new) The system of claim 14, in which the input non-negative matrix is

reconstructed from the set of non-negative bases matrices and the non-negative weight matrices.

19. (new) The system of claim 18, in which the reconstructing is according to

$$\mathbf{V} \approx \sum_{t=0}^{T-1} \mathbf{W}_t \cdot \overset{t\rightarrow}{\mathbf{H}} .$$

20. (new) The system of claim 19, further comprising;

means for measuring on error of the reconstructing by a cost function

$$D = \left\| \mathbf{V} \otimes \ln(\frac{\mathbf{V}}{\mathbf{\Lambda}}) - \mathbf{V} + \mathbf{\Lambda} \right\|_F ,$$

where $\mathbf{\Lambda} = \sum_{t=0}^{T-1} \mathbf{W}_t \bullet \overset{t\rightarrow}{\mathbf{H}}$.

21. (new) The system of claim 18, further comprising:

means for updating the cost function for each iteration of t according to

$$\mathbf{H} = \mathbf{H} \otimes \frac{\mathbf{W}_t^\top \cdot \overset{\leftarrow t}{[\mathbf{V}}}{\mathbf{W}_t^\top \cdot \mathbf{1}} \quad \text{and} \quad \mathbf{W}_t = \mathbf{W}_t \otimes \frac{\mathbf{V} \cdot \overset{t\rightarrow}{\mathbf{H}}^\top}{\mathbf{1} \cdot \overset{t\rightarrow}{\mathbf{H}}^\top}, \quad \forall t \in [0 \ldots T-1] ,$$

where an inverse operation $\overset{\leftarrow t}{(.)}$ shifts columns of corresponding matrices to

the left by i time increments.

22. (new) The system of claim 18, in which the reconstructing is partial to generate an output non-negative matrix representing a selected one of the plurality of individual signals to perform source separation.

23. (new) The system of claim 14 in which the first non-negative matrix represents a plurality of acoustic signals, each acoustic signal generated by a different source.

24. (new) The system of claim 23, in which columns of the set of non-negative bases matrices columns represent spectral features of the plurality of acoustic signals, and rows of the non-negative weight matrix represent instances in time when the spectral features occur.

25. (new) The system of claim 14, in which the first non-negative matrix represents a plurality of time series data streams.